Physics/engineering Analysis Framework

- *In March DOM will begin spitting up data. We are interested in testing the hardware, verifying various things, and planning for PMT/DOM characterization and data analysis.*

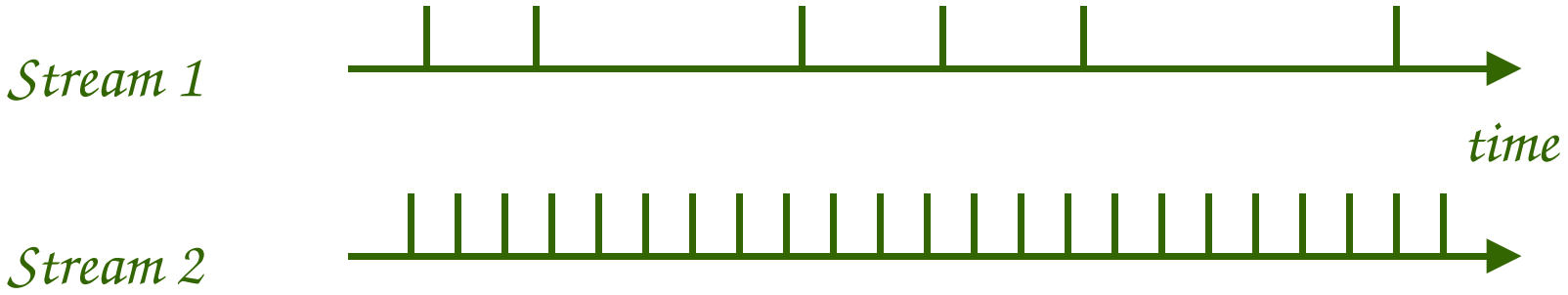
- *Software tools*
- *Specific data*
- *Scheme for using both at the same time*
- *End of the food chain … test schedule & discussion of required test data.*

Physics/engineering Analysis Framework

- Software Environment
- Framework (faye)
  - Layers of code to support functionality & data model
  - Interfaces:
    - functionality: configure(), event(), finish(), etc()
    - data streams, disk formats, internal data representations
    - user interfaces, graphics interfaces
- Data Schemas (XML): specific descriptions
  - EngineeringSchema1 - exists
  - MonitoringSchema1 – defined by April???
  - StrawmanAnalysisSchema1 – cowen/sullivan

Data Streams within the framework

- Data tag: (time, key) dataValue

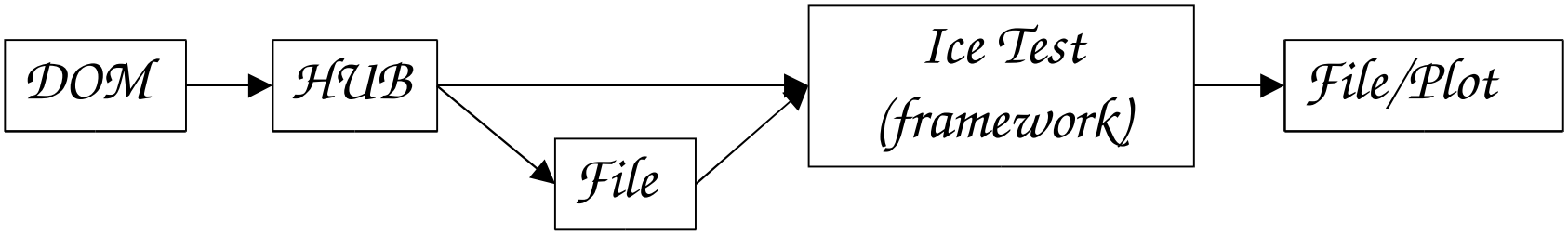


findNearest(stream,t)

findNext(stream,t)

findPrevious(stream,t)

Test System



- Both EngineeringSchema1 and MonitoringSchema1 are produced by the DOM and streamed out by the HUB, but on different time scales.
- Some "DOM tests" are in the application and may be written to text files. In some cases it would be nice to have a standard plot. (trigger rate vs disc. thresh.)
- Other data sources
  - Use local coincidence to "trigger" test DOM
  - Use additional DOM cards to readout "waveform" and use local coincidence to trigger test DOM.
  - Need to define any non-DOM/HUB streams

    … are there requirements?

Test Data

- EngineeringSchema1
  - tagged(domId, time)
  - localTime
  - triggerBits(flasher, spe, mpe, upper, lower, cpu)
  - flashADC
  - ATWD
- MonitoringSchema1 (hopefully = string18 + DAC setValues)
  - domId, system time, 2 clock times
  - moni status, fpga status,
  - 4 DOMCOM ADCs & status bits
  - dom power
  - dom current
  - voltages(dynode, anode, total)
  - DAC set values

Test Data Analysis

- Short term
  - March 1 EngineeringSchema1 … waveform display + fex
    - w/o rap time, only sequence, (would rough time be useful?)
  - April 1 ??? MonitoringSchema1 … display with set values
    - dom "set values" & system time
  - ??? EngineeringSchemaN … functions of time or set values
    - with rap time
- Mid term
  - required external data streams
    … characterization/calibration of PMT/DOM
  - framework acts as poor man's event builder
    … event studies are possible
- Long term
  - full DAQ … configuration, monitor, calibration,
    event streams available for analysis.